

Remarks & Arguments

In the Office Action, the Examiner noted that Claims 1-20 are pending in the application, and that Claims 1-4, 6-11, 13, 14, 16-18 and 20 are rejected and Claims 5, 12, 15 and 19. Applicant notes for the record that the Office Action contains no objection to Claims 5, 12, 15 and 19, and furthermore 1-20 are actually rejected. By this amendment, Claims 1, 3, 4, 6-14 and 20 have been amended, Claims 2 and 5 have been canceled without prejudice, and Claims 21 and 22 have been added. Thus, Claims 1, 3, 4 and 6-22 are pending in the application. The amendments to the specification, and claims do not add new matter to the application. The Examiner's rejections are traversed below.

Rejections Under 35 U.S.C. 102

Claims 1, 3, 4, 7, 9 and 13 stand rejected under 35 U.S.C. 102 as being anticipated by U.S. Patent Application Publication No. 2002/0181723 to Kataoka. Applicant respectfully traverses the rejection of claims on the basis that Kataoka does not disclose each and every element as set forth in the claims as amended.

Claim 1, as amended, recites "a speaker at a fixed location for transmitting a signal having a given frequency above an audible range." In contrast, Kataoka discloses that the "sound source" is a human voice and therefore the signal consists of frequencies in the audible range. Furthermore, Claim 1 recites "a computing device for determining at least one of a

position and an orientation of said object” having “a plurality of microphones” attached thereto, “as a function of a delay of said audio signal received by each of said plurality of microphones.” In contrast, Kataoka discloses determining a direction of the “sound source” and not the position of the robot where the “voices” are received.

For each of the reasons set forth above, Applicant respectfully submits that Claim 1 is patentable over Kataoka. Accordingly, Applicant requests that the anticipation rejection of Claim 1 be withdrawn and that Claim 1 be allowed.

Claims 3 and 4 are allowable by virtue of their dependency on respective base Claim 1, as well as the additional elements they recite. Accordingly, Applicant respectfully requests that the anticipation rejection of Claims 3 and 4 be withdrawn and that Claims 3 and 4 be allowed.

Claim 7, as amended, recites “transmitting a **first non-audible signal** from a first speaker.” In contrast, Kataoka discloses that the “sound source” is a human voice and therefore the signal consists of frequencies in the audible range. Applicant therefore respectfully submits that Claim 7 is patentable over Kataoka. Accordingly, Applicant requests that the anticipation rejection of Claim 7 be withdrawn and that Claim 7 be allowed.

Claims 9 and 13 are allowable by virtue of their dependency on respective base Claim 7, as well as the additional elements they recite. Accordingly, Applicant respectfully requests that the anticipation rejection of Claims 9 and 13 be withdrawn and that Claims 9 and 13 be allowed.

Rejections Under 35 U.S.C. 103

Claims 6 and 12 stand rejected under 35 U.S.C. 103 as being obvious in view of the combination of U.S. Patent Application Publication No. 2002/0181723 to Kataoka and U.S. Patent Application Publication No. 2003/0142829 to Avigni. Applicant respectfully traverses the rejection of Claims 6 and 12 on the basis that the relied upon references do not teach every element in the respective independent Claims.

With regard to **Claim 6**, Applicant respectfully submits that independent Claims 1 is patentable over Kataoka for each of the reasons set forth above. In particular, Avigni is cited as teaching capturing sound using a plurality of microphones. Thus, Avigni does not add anything to the teachings of Kataoka with reference to Claims 1. Accordingly, neither Kataoka nor Avigni teach or suggest “a speaker at a fixed location for transmitting **a signal having a given frequency above an audible range**,” “a plurality of microphones mounted upon an object for receiving said signal [having a given frequency above an audible range]” and “a computing device for determining at least one of a position and an orientation of said object as a function of a delay of said signal [having a given frequency above an audible range] received by each of said plurality of microphones.” Instead, both Kataoka and Avigni disclose use of signals in the audible range. Applicant therefore respectfully submits that Claims 5 are patentable over Kataoka in view of Avigni based upon their dependency on Claim 1. Accordingly, Applicant requests that the obviousness rejection of Claim 6 be withdrawn and that Claims 6 be allowed.

With regard to **Claim 12**, Applicant respectfully submits that independent Claims 7 is patentable over Kataoka for each of the reasons set forth above. In particular, Kataoka does not teach or suggest “a speaker at a fixed location for transmitting a **signal having a given frequency above an audible range**,” “a plurality of microphones mounted upon an object for receiving said signal [having a given frequency above an audible range]” and “a computing device for determining at least one of a position and an orientation of said object as a function of a delay of said signal [having a given frequency above an audible range] received by each of said plurality of microphones.” Instead, Kataoka discloses use of signals in the audible range.

Furthermore, Applicant respectfully submits that there is no legal bases for rejecting a claim based upon a limitation being an “inventor’s preference,” instead the prima facie case must show that the prior art teaches or suggest to one skilled in the art either 1) combining limitations from multiple references or 2) modifying the relied upon reference. Instead the “Official Notice” alleges that it would have been obvious to one of ordinary skilled in the art to first add a display, and then next display a cursor on the display as opposed to simply displaying images without a cursor, and then further to control the position of the cursor based upon the determined direction from which the human voice is coming from, and then finally to determine the direction of the robot instead of the human so that the direction of the robot (which is what the microphones are attached to) controls the position of the cursor. Accordingly, Applicant submits that it would not be obvious to make multiple modifications to a limitation that is not even taught or suggested in the relied upon reference. Furthermore, in view of the alleged obviousness of

making multiple modifications to a limitation that is not taught or suggested, the Applicant submits that the Examiner is clearly using impermissible hindsight.

For each of the reasons set forth above, Applicant respectfully submits that Claim 12 is patentable over Kataoka. Accordingly, Applicant requests that the obviousness rejection of Claim 12 be withdrawn and that Claims 12 be allowed.

Claims 8, 10 and 11 stand rejected under 35 U.S.C. 103 as being obvious in view of the combination of U.S. Patent Application Publication No. 2002/0181723 to Kataoka and U.S. Patent Application Publication No. 2005/0036631 to Feit. For each of the reasons set forth above, Applicant respectfully submits that independent Claim 7 is patentable over Kataoka. Feit is cited as teaching “transmitting said first **audio** signal from a second speaker during a second period of time,” “transmitting said second **audio** signal from a second speaker.” Thus, Feit does not add anything to the teachings of Kataoka with reference to Claim 7. The Examiner’s Official Notice also does not add anything to the teachings of Kataoka with reference to Claim 7. In particular, neither Feit nor Kataoka teach or suggest “transmitting a **first non-audible signal** from a first speaker, receiving said first non-audible signal at a plurality of microphones, determining a delay of said received first non-audible signal for each of said plurality of microphones, and determining at least one of a relative position and a relative orientation of said plurality of microphones as a function of said determined delay.” Applicant therefore respectfully submits that Claims 8, 10 and 11 are patentable over Kataoka in view of Feit and the Examiner’s Official Notice based upon their dependency on Claim 7. Accordingly, Applicant

requests that the obviousness rejection of Claims 8, 10 and 11 be withdrawn and that Claims 8, 10 and 11 be allowed.

Claims 14 and 17-20 stand rejected under 35 U.S.C. 103 as being obvious in view of the combination of U.S. Patent Application Publication No. 2002/0181723 to Kataoka and U.S. Patent No. 7,012,630 to Curry.

Claim 14, as amended, recites “a speaker for generating a sound wave at a frequency above the audible range.” In contrast, Kataoka teaches that the “sound source” is a human voice and therefore the signal consists of frequencies in the audible range. Similarly, Curry also teaches the “sound source” is a human voice and therefore the sound wave is in the audible range. Furthermore, Claim 1 recites a “computing device for determining at least one of a relative position and a relative orientation of said assembly [to which the microphones are mounted] based on delay differences of said signals.” In contrast, Kataoka discloses determining a direction of the “sound source” and not the position of the robot where the “voices” are received by the microphones attached to the robot.

For each of the reasons set forth above, Applicant respectfully submits that Claim 14 is patentable over Kataoka, Curry and the combination thereof. Accordingly, Applicant requests that the obviousness rejection of Claim 14 be withdrawn and that Claim 14 be allowed.

Claims 17-20 are allowable by virtue of their dependency on respective base Claim 14, as well as the additional elements they recite. Accordingly, Applicant respectfully requests that the obviousness rejection of Claims 17-20 be withdrawn and that Claims 17-20 be allowed.

Claim 15 stands rejected under 35 U.S.C. 103 as being obvious in view of the combination of U.S. Patent Application Publication No. 2002/0181723 to Kataoka, U.S. Patent No. 7,012,630 to Curry and U.S. Patent Application Publication No. 2003/0142829 to Avigni. For each of the reasons set forth above, Applicant respectfully submits that independent Claim 14 is patentable over Kataoka and Curry. Avigni is cited as teaching "wirelessly coupling the personal computer and microphones." Thus, Avigni does not add anything to the teachings of Kataoka and/or Curry with reference to Claim 14. Applicant therefore respectfully submits that Claim 15 is patentable over Kataoka and Curry in view of Avigni based upon its dependency on Claim 14. Accordingly, Applicant requests that the obviousness rejection of Claim 15 be withdrawn and that Claim 15 be allowed.

Claim 16 stands rejected under 35 U.S.C. 103 as being obvious in view of the combination of U.S. Patent Application Publication No. 2002/0181723 to Kataoka, U.S. Patent No. 6,445,364 to Zwern and U.S. Patent Application Publication No. 2003/0142829 to Avigni.

For the record, Applicant notes that the Examiner does not rely upon the Zwern reference in the body of the rejection. Furthermore, because Claim 16 depends upon Claim 14 and the Examiner relied upon the Curry reference to reject Claim 14, the rejection of Claim 16 should also rely upon the Curry reference. In view of the nature of the error and the rationale advanced in the rejection, the Applicant assumes that the Claim is rejected based upon the combination of Kataoka, Curry and Avigni. If the assumption is not correct, the Applicant requests that the Examiner make a proper rejection particularly pointing out the teaching of each reference that

the Examiner is relying upon to establish a prima facie case. In such event, Applicant notes that Claim 16 was not properly rejected and therefore the next action cannot be made final.

For each of the reasons set forth above, Applicant respectfully submits that independent Claim 14 is patentable over Kataoka and Curry. Avigni is cited as teaching wirelessly coupling the microphones to a remote location. Thus, Avigni does not add anything to the teachings of Kataoka and/or Curry with reference to Claim 14. Applicant therefore respectfully submits that Claim 16 is patentable over Kataoka and Curry in view of Avigni based upon its dependency on Claim 14. Accordingly, Applicant requests that the obviousness rejection of Claim 16 be withdrawn and that Claim 16 be allowed.

New Claims

Applicant respectfully submits that new **Claim 21** is allowable by virtue of its dependency on respective base Claim 1, as well as the additional elements it recites. In particular, neither Kataoka, Curry, Feit, Avigni nor any combination thereof, teach or suggest that the signal includes a marker or determining a position and/or orientation as a function of a delay of the marker received by each of a plurality of microphones relative to the marker of a reference signal.

Applicant respectfully submits that new **Claim 22** is allowable by virtue of its dependency on respective base Claim 1, as well as the additional elements it recites. In particular, neither Kataoka, Curry, Feit, Avigni nor any combination thereof, teach or suggest or

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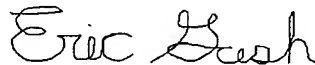
determining a position and/or orientation as a function of a time delay of the signal received by each of aplurality of microphones relative to a reference signal.

Conclusion

For all the reasons advanced above, Applicant respectfully submits that the present application is in condition for allowance and that action is earnestly solicited. The Examiner is invited to contact Applicant's undersigned representative if the Examiner believes such action would expedite resolution of the present Application.

The Commissioner is hereby authorized to charge any additional fees, which may be required for this amendment, or credit any overpayment, to Deposit Account 504160. In the event that an extension of time is required, or may be required in addition to that requested in a petition for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account 504160.

Respectfully submitted,
MURABITO, HAO & BARNES LLP



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Eric J. Gash
Registration No. 46,274
Tel.: (408) 938-9080 ext. 127